



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/895,876	07/02/2001	Taylor Pursell	46104	5376
20736	7590	09/10/2003		
MANELLI DENISON & SELTER 2000 M STREET NW SUITE 700 WASHINGTON, DC 20036-3307			EXAMINER	
			CLARDY, S	
		ART UNIT	PAPER NUMBER	
		1616	14	
DATE MAILED: 09/10/2003				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No. <b>09/895,876</b>	Applicant(s) <b>Pursell et al</b>
Examiner <b>S. Mark Clardy</b>	Art Unit <b>1616</b>

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1)  Responsive to communication(s) filed on Aug 1, 2003
- 2a)  This action is FINAL. 2b)  This action is non-final.
- 3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.
- 4)  Claim(s) 1-200 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5)  Claim(s) \_\_\_\_\_ is/are allowed.
- 6)  Claim(s) 1-200 is/are rejected.
- 7)  Claim(s) \_\_\_\_\_ is/are objected to.
- 8)  Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9)  The specification is objected to by the Examiner.
- 10)  The drawing(s) filed on \_\_\_\_\_ is/are a)  accepted or b)  objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11)  The proposed drawing correction filed on \_\_\_\_\_ is: a)  approved b)  disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12)  The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13)  Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All b)  Some\* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \*See the attached detailed Office action for a list of the certified copies not received.
- 14)  Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).  
a)  The translation of the foreign language provisional application has been received.
- 15)  Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1)  Notice of References Cited (PTO-892) 4)  Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2)  Notice of Draftsperson's Patent Drawing Review (PTO-948) 5)  Notice of Informal Patent Application (PTO-152)
- 3)  Information Disclosure Statement(s) (PTO-1449) Paper No(s). 8 6)  Other:

Art Unit: 1616

Claims 1-200 are pending in this application which claims the benefit under 35 USC 119(e) of US Provisional Applications No. 60/216,162, and 60, 254,178, filed July 3, 2000, and December 11, 2000, respectively. The finality of the previous action is withdrawn.

Again, applicants' claims are drawn to controlled release agricultural absorbent compositions (claims 1-122, 142-144) and methods of making them (claims 123-141, 145-200) comprising:

- 1) absorbent particulate material with 10-200  $\mu$  diameter capillaries/voids  
claim 2+: expanded or exfoliated (claim 63) perlite, shredded newspaper, saw dust, cotton lint, ground corn cobs, corn cob flour, Metrecz absorbent, diatomaceous earth.
- 2) agricultural materials (optionally with an interspatial blocker<sup>1</sup>, claim 35-49) fertilizers (claims 7-14, 23-31): NPK, micronutrients, secondary nutrients, nitrification regulators<sup>2</sup>, growth regulators<sup>3</sup> insecticides (claim 32): OO-diethyl O-(2-isopropyl-6-methyl-4-pyrimidinyl)phosphorothioate herbicides (claim 33): 2,4-D fungicides (claim 34): ferric dimethyldithiocarbamate

The capillary/void spaces are impregnated (40-95%) with the agricultural materials by first absorbing water into the particulate material which is then heated to form steam. The heated absorbent particulate material is then placed into an aqueous solution of the active agent which is apparently

---

<sup>1</sup>E.g., plant starches, protein gels, glues, gums, crystallizing compounds (sodium silicate, phosphate cements, calcium oxide cements, hydraulic cements: claim 44), gelling clays, synthetic gel forming compounds.

<sup>2</sup>Claim 14: 2-chloro-6-trichloromethylpyridine, sulfathiazole, dicyandiamide, thiourea, guanylthiourea

<sup>3</sup>Claim 30: potassium azide, 2-amino-4-chloro-6-methylpyrimidine, N-2,5-dicorphenyl succinamide, 4-amino-1,2,4-triazole hydrochloride

Art Unit: 1616

pulled into the capillary spaces which were vacated by the escaping steam. Only fertilizer compositions have been tested.

The IDS and references cited therein have been considered in response to applicant's interview of July 16, 2003.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-200 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined teachings of Pierce (US 3,172,752) and Burkett (US 2,779,670).

Pierce teaches controlled release agrochemical compositions comprising the combination of active agents coated onto expanded perlite particles with the coating completely filling the pores of the perlite particles (col 2, lines 40-61). To make the compositions, the perlite particles are heated to drive off part of the combined water, or water of crystallization to generate gas pressure in the bubbles within the perlite (col 3, lines 50-55). With the particles pre-heated, the coating liquid is sucked into and generally will fill all pores exposed to or communicating with the surface, especially if a wetting agent is used (col 4, lines 40-46; col 9, lines 36-46). Soluble cellulose such as methyl cellulose is disclosed as a holding material which is useful as a carrier for active agents such as insecticides, fungicides, herbicides, etc. (col 6, lines 15-40). Additional holding materials are disclosed in columns 6-7.

Art Unit: 1616

Burkett teaches soil conditioning and fertilizing compositions comprising agriculturally active chemicals distributed uniformly throughout the soil conditioner (col 1, lines 42-47). Expanded natural perlite is used for the carrier material (column 2); it is heated in a kiln at a temperature of 900° F to 1450° F (lines 70-71) and is then discharged into an aqueous solution of the desired agricultural additives in a mixing tank. The open pores, cells, bubbles, and interstices in the expanded perlite then absorb the liquid solution in excess of 11.5 times the weight of the perlite (col 3, lines 1-12).

One of ordinary skill in the art would be motivated to combine these references because they disclose the step of heating perlite prior to absorbing an agriculturally useful liquid composition into the pores of the heated perlite.

Thus, it would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to have combined applicants' absorbent particulate materials and agriculturally active agents in a single composition because the prior art teaches the concept of heating a carrier such as perlite to drive off water or steam which is contained in the spaces or pores of the perlite, which are then filled by an agriculturally useful liquid composition when the perlite is submerged in the liquid. The technique would appear to be applicable to any solid carrier which has a large internal surface area, i.e., cells and pores throughout the structure. Further, it would be *prima facie* obvious to the ordinary artisan that the technique would be useful for any active agent capable of being solubilized.

No unobvious or unexpected results are noted; no claim is allowed.

Art Unit: 1616

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103c and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to S. Mark Clardy whose telephone number is (703) 308-4550.



S. Mark Clardy  
Primary Examiner  
AU 1616

September 8, 2003